In the Claims:

1. (Currently Amended) A high-speed digital enhancement method for ~~singled color~~ gray-scale images, comprising:

a. computing a normalized light dynamic range compressed image;

b. computing a normalized dark dynamic range compressed image; and

c. computing a balanced dynamic range compressed image, using said normalized light and dark dynamic range compressed images.

2. (Original) The method of claim 1, wherein said step of computing a normalized light dynamic range compression image further includes computing a light dynamic range compressed image.

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3. (Original) The method of claim 2, wherein said step of computing a light dynamic range compressed image is carried out ~~according to Eqn.s 2~~ as

$$I_{pos}(i,j) = \frac{N(i,j)}{K + W * \{N(i,j)\}}$$

wherein $I_{pos}(i,j)$ represents said light dynamic range compressed image, $N(i,j)$ represents one of the gray-scale images, K is a positive scalar variable, W is an averaging kernel and * represents convolution.

4. (Original) The method of claim 1, wherein said step of computing a normalized dark dynamic range compressed image further includes computing a dark dynamic range compressed image.

5. (Original) The method of claim 4, wherein said step of computing a dark dynamic range compressed image is carried out ~~according to Eqn. 3~~ as

$$I_{neg}(i,j) = 1 - \frac{FS - N(i,j)}{K + W * \{FS - N(i,j)\}}$$

wherein $I_{neg}(i,j)$ represents said dark dynamic range compressed image, $N(i,j)$ represents one of the gray-scale images, FS is a dynamic range of said one gray-scale image; K is a positive scalar variable, W is an averaging kernel and * represents convolution.

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6. (Original) The method of claim 1, where the computation of said light and dark normalized dynamic range compressed images includes using look-up tables.

7. (Original) A method for dynamic range compression and color reconstruction of a color image, the image having a plurality of original colors and a single original norm, the method comprising:

a. obtaining a balanced dynamic range compressed norm of the image;

b. dividing said balanced dynamic range compressed norm by the original norm; and

c. reconstructing each color by multiplying each original color by a quotient of said balanced dynamic range compressed norm divided by the original norm.

8. (Canceled)

9. (Original) The method of claim 7, wherein said step of reconstructing includes using a two dimensional lookup table (LUT) of $\frac{I_{bal}(i,j)}{N(i,j)}$.

10. (Original) The method of claim 7, wherein said step of reconstructing includes using a uni-dimensional lookup table (LUT) of $\frac{1}{N(i,j)}$.

11. (New) A method of enhancing an input image, comprising the steps of:

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a. computing a light dynamic range compressed image corresponding to the input image;

b. computing a dark dynamic range compressed image corresponding to the input image; and

c. combining said light dynamic range compressed image and said dark dynamic range compressed image to produce a balanced dynamic range compressed image.

12. (New) The method of claim 11, wherein said computing of said light dynamic range compressed image includes normalizing said light dynamic range compressed image and wherein said computing of said dark dynamic range compressed image includes normalizing said dark dynamic range compressed image.

13. (New) A method of enhancing an input image, comprising the steps of:

a. computing a norm N of each pixel of the input image; and

b. computing a light dynamic range compressed image, each pixel whereof is

$$I_{pos} = \frac{N}{K + W * \{N\}}$$

wherein K is a positive scalar variable, W is an averaging kernel, $\{N\}$ is a matrix of said norms and * represents convolution in a neighborhood of said each pixel.

14. The method of claim 13, wherein said light dynamic range compressed image is computed using a lookup table for $\frac{1}{K + W * \{N\}}$.

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15. The method of claim 13, wherein said light dynamic range compressed image is computed using a lookup table for $\frac{N}{K + W * \{N\}}$.

16. (New) The method of claim 13, further comprising the step of:

c. computing a dark dynamic range compressed image, each pixel whereof is

$$I_{neg} = 1 - \frac{FS - N}{K + W * \{FS - N\}}$$

wherein FS is a full-scale dynamic range, K is a positive scalar variable, W is an averaging kernel, $\{FS\text{-}N\}$ is a matrix of a difference between FS and said norms, and * represents convolution in a neighborhood of said each pixel.

17. (New) The method of claim 16, further comprising the steps of:

d. normalizing and truncating said light dynamic range compressed image, thereby producing a normalized light dynamic range compressed image; and

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e. normalizing and truncating said dark dynamic range compressed image, thereby producing a normalized dark dynamic range compressed image.

18. (New) The method of claim 17, further comprising the step of:

f. combining said normalized light dynamic range compressed image and said normalized dark dynamic range compressed image to produce a balanced dynamic range compressed image.